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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,755	09/29/2003	Tushar Deepak Chandra	ARC920030059US1	1473
55508	7590	05/03/2006	EXAMINER	
JOSEPH P. CURTIN, L.L.C. 1469 N.W. MORGAN LANE PORTLAND, OR 97229-5291			VAUTROT, DENNIS L	
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			2167	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/673,755	<b>Applicant(s)</b> CHANDRA ET AL.	
	<b>Examiner</b> Dennis L. Vautrot	<b>Art Unit</b> 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/29/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The Applicants' Information Disclosure statement (IDS), filed 29 September 2003, has been received and entered into the record. Since the IDS complies with the provisions of MPEP § 609, the references cited therein have been considered by the examiner. See attached form PTO-1449.

### ***Drawings***

2. The drawings are objected to because two figures are numbered incorrectly. In Figure 1, "105" needs to replace "104" and in Figure 4, "402" needs to replace "102". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities: Several drawing descriptions are mislabeled. In paragraph 23, on page 9, "104a", "104b", and "108" should be changed to "404a", "404b", and "408" respectively in order to match the drawings.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by **Watt** (US Patent Application Publication 2003/0126202).

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6. Regarding claim 1, **Watt** teaches a method of allocating storage to a system user of a storage area network, the storage area network including storage and a plurality of servers accessing the storage (See page 3-4, paragraph [0046] "Repository manager is responsible for securely and efficiently provisioning and managing server images on storage devices within data center. It allows an administrator to install software one time such that it can be shared by all servers within a server pool, or even by servers in different pools." Here, the servers are couple to the repository manager or "storage");

the method comprising steps of: identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user when a server is allocated to the system user (See page 4, paragraph [0046] "The administrator can pick and choose from the installed software base to create a master server image...." and see page 4, paragraph [0058] "In an alternate embodiment, repository manager can also install and manage instances of a SAN as well as on a server's local attached storage.");

generating a plurality of replicas of each identified master storage image prior to at least one server being allocated to the system user (See page 4, paragraph [0046] Once defined, this server image can be rapidly replicated and configured using automated tools to build out images for an entire server pool.");

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and allocating a selected replica of the plurality of replicas of the master storage image to each server allocated to the system user (See page 4, paragraph [0046] Once defined, this server image can be rapidly replicated and configured using automated tools to build out images for an entire server pool.”)

7. Regarding claim 12, **Watt** discloses a storage area network, comprising: a plurality of servers coupled to a storage (See page 3-4, paragraph [0046] “Repository manager is responsible for securely and efficiently provisioning and managing server images on storage devices within data center. It allows an administrator to install software one time such that it can be shared by all servers within a server pool, or even by servers in different pools.” Here, the servers are couple to the repository manager or “storage”);

and a storage provisioning device coupled to the servers and allocating at least one server and a portion of the storage to a system user, the storage provisioning device identifying at least one master storage image that is stored in the storage and that will be associated with a system user when a server is allocated to the system user (See page 4, paragraph [0046] “The administrator can pick and choose from the installed software base to create a master server image....” and see page 4, paragraph [0058] “In an alternate embodiment, repository manager can also install and manage instances of a SAN as well as on a server’s local attached storage.”);

the storage provisioning device further generating a plurality of replicas of each identified master storage image prior to at least one server being allocated to the system user (See page 4, paragraph [0046] Once defined, this server image can be rapidly replicated and configured using automated tools to build out images for an entire server pool.");

and allocating a selected replica of the plurality of replicas of the master storage image to each server allocated to the system user (See page 4, paragraph [0046] Once defined, this server image can be rapidly replicated and configured using automated tools to build out images for an entire server pool.")

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 - 8 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watt** (US Patent Application Publication 2003/0126202) as applied to claim 1 above, and further in view of **Sheets et al.** (US 6,819,905).

10. Regarding claim 2, **Watt** teaches a method substantially as claimed. Watt fails to teach de-allocating an allocated replica from the system user each time a server is de-

allocated from the system user; and assigning the de-allocated replica to a pool of de-allocated replicas. However, **Sheets et al.** teaches de-allocating an allocated replica from the system user each time a server is de-allocated from the system user; and assigning the de-allocated replica to a pool of de-allocated replicas. (See column 18, lines 32-45 "Another way of looking at how the present invention can dynamically provide hosted service across disparate accounts is to view a portion of the servers as being assigned to a pool of a plurality of virtual servers that may be selectively configured to access software and data for a particular administrative group...it automatically allocates one of the servers from the pool of virtual servers to that administrative group. Conversely, if the dispatch module determines that an agency group can relinquish one of its servers, that relinquished server would be added to the pool of virtual servers that are available for re' allocation to a different administrative group.") It would have been obvious to one with ordinary skill in the art to combine the method as disclosed in **Watt** with the de-allocating method as disclosed in **Sheets et al.** because the two both disclose methods that operate very similarly, but the de-allocation was simply not addressed in **Watt**, but is a natural extension of **Watt**. By moving the de-allocated replica into the pool, the server is now marked available for future use when it is needed. It is for this reason that one of ordinary skill in the art would have been motivated to include de-allocating an allocated replica from the system user each time a server is de-allocated from the system user; and assigning the de-allocated replica to a pool of de-allocated replicas.



11. Regarding claim 3, **Watt** teaches a method substantially as claimed. Watt fails to teach the pool of de-allocated replicas is configured to automatically scrub all replicas in the pool of de-allocated replicas asynchronously from de-allocation the step of de-allocation. However, **Sheets et al.** teaches the pool of de-allocated replicas is configured to automatically scrub all replicas in the pool of de-allocated replicas asynchronously from de-allocation the step of de-allocation. (See column 15, lines 8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would have been obvious to one with ordinary skill in the art to combine the method of **Watt** with the automatic scrub function of **Sheets et al.** because of the advantage automatically clearing the unique data provides. This provides a layer of security, allowing different users to use the same equipment dynamically without having to worry about improper sharing of secret data. It is for this reason that one of ordinary skill in the art would have been motivated to have the pool of de-allocated replicas configured to automatically scrub all replicas in the pool of de-allocated replicas asynchronously from de-allocation the step of de-allocation.

12. Regarding claim 4, **Watt** teaches a method substantially as claimed. Watt fails to teach the pool of de-allocated replicas is scrubbed when a number of de-allocated

replicas assigned to the pool of de-allocated replicas equals a predetermined number. However, **Sheets et al.** teaches the pool of de-allocated replicas is scrubbed when a number of de-allocated replicas assigned to the pool of de-allocated replicas equals a predetermined number. (See column 15, lines 8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would have been obvious to one with ordinary skill in the art to combine the method of **Watt** with the automatic scrub function of **Sheets et al.** because of the advantage automatically clearing the unique data provides. This provides a layer of security, allowing different users to use the same equipment dynamically without having to worry about improper sharing of secret data. While not specifically mentioned here, the predetermined number can be considered to be one and the replica is scrubbed by reconfiguring it for use with another user's data. It is for this reason that one of ordinary skill in the art would have been motivated to have the pool of de-allocated replicas is scrubbed when a number of de-allocated replicas assigned to the pool of de-allocated replicas equals a predetermined number.

13. Regarding claim 5, **Watt** teaches a method substantially as claimed. Watt fails to teach the pool of de-allocated replicas is automatically scrubbed by reformatting. However, **Sheets et al.** teaches the pool of de-allocated replicas is automatically

scrubbed by reformatting. (See column 15, lines 8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would have been obvious to one with ordinary skill in the art to combine the method of **Watt** with the automatic scrub by reformatting function of **Sheets et al.** because of the advantage automatically clearing the unique data provides. This provides a layer of security, allowing different users to use the same equipment dynamically without having to worry about improper sharing of secret data. It is for this reason that one of ordinary skill in the art would have been motivated to have the pool of de-allocated replicas is automatically scrubbed by reformatting.

14. Regarding claim 6, **Watt** additionally discloses each replica is a logical volume. (See page 5, paragraph [0067] "In another embodiment, the SAN routing and volume assignment can be changed by DSAP system 102 thereby affecting the SAN's mapping of the server's SAN connection to a SAN volume." The way the replica is referred to here makes it clear that the replicas are logical volumes.)

15. Regarding claim 7, **Watt** teaches a method substantially as claimed. **Watt** fails to teach the system user is one of a customer and an application. However, **Sheets et al.** teaches the system user is one of a customer and an application. (See column 15, lines

8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would have been obvious to one with ordinary skill in the art to combine the method of **Watt** with the automatic scrub by reformatting function of **Sheets et al.** because of the advantage automatically clearing the unique data provides. This provides a layer of security, allowing different users to use the same equipment dynamically without having to worry about improper sharing of secret data. It is also clear that the user is referring to a customer in **Sheets et al.** It is for this reason that one of ordinary skill in the art would have been motivated to have the system user is one of a customer and an application.

16. Regarding claim 8, **Watt** teaches a method substantially as claimed. Watt fails to teach the master storage image is pre-configured with data and state information that is associated with a system user. However, **Sheets et al.** teaches the master storage image is pre-configured with data and state information that is associated with a system user. (See column 15, lines 8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would

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have been obvious to one with ordinary skill in the art to combine the method of replication as disclosed in **Watt** with the data and state information being associated with the system user in the master storage image as occurs in **Sheets et al.** because of the advantage of being able to keep the data separate for each user. Security is enhanced and the unique data can be kept separate. It is for this reason that one of ordinary skill in the art would have been motivated to have the master storage image pre-configured with data and state information that is associated with a system user.

17. Regarding claim 13-19, **Watt** in view of **Sheets et al.** disclose the storage area network as cited above for claims 2-8 respectively.

18. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watt** (US Patent Application Publication 2003/0126202) in view of **Haun et al.** (US 6,751,058).

19. Regarding claim 9, **Watt** teaches a method of allocating storage between system users of a storage area network, the storage area network including storage and a plurality of servers accessing the storage (See page 4, paragraph [0046] "It allows an administrator to install software one time such at it can be shared by all servers within a server pool, or even by servers in different pools"), the method comprising steps of:

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identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user (See page 4, paragraph [0046] "The administrator and pick and choose from the installed software base to create a master server image..." and see page 4, paragraph [0058] "In an alternate embodiment, repository manager can also install and manage instances of a SAN as well as on a server's local attached storage."), each master storage image including both a read-only data portion and a writeable data portion (See page 7, paragraph [0097] "The remainder of the image is shared with other dependent instances by referencing the read-only snapshot containing the original files.");

generating a read-only copy of the read-only data portion of each master storage image (See page 7, paragraph [0095] "An independent instance contains an actual physical copy of all files in the master image, with the configuration files updated to provide a unique personally....The independent instance is stored on centralized storage and can be run by any available server.");

sharing the read-only data copy of the read-only data portion of each master storage image across the plurality of servers (See page 7, paragraph [0097] "The remainder of the image is shared with other dependent instances by referencing the read-only snapshot containing the original files.");

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allocating the read-only copy of the read-only data portion of a selected master storage image to each server allocated to the system user (See page 4, paragraph [0046]

Once defined, this server image can be rapidly replicated and configured using automated tools to build out images for an entire server pool.”)

**Watt** fails to teach allocating a separate writable data volume of the writable data portion of the selected master storage image to each server allocated to the system user.

However, **Haun et al.** teaches allocating a separate writable data volume of the writable data portion of the selected master storage image to each server allocated to the system user. (See column 2, lines 50-55 “According to one embodiment of the present invention, a network computer (NC) system maintains a copy of the operating system that cannot be corrupted by ordinary users of the NC system. Additionally, the NC system may preserve user customizations, such as preferences, by maintaining individual, user, storage areas.”)

It would have been obvious to one with ordinary skill in the art to provide a separate writeable data area as disclosed in **Haun et al.** with the allocation method as disclosed in **Watt** because separating the writable area keeps the data from being corrupted as well as providing a layer of security. It is for this reason that one of ordinary skill in the art would have been motivated to allocate a separate writable data volume of the

writable data portion of the selected master storage image to each server allocated to the system user.

20. Regarding claim 20, **Watt** in view of **Haun et al.** disclose the storage area network as cited above for claim 9.

21. Claims 10 – 11 and 21 - 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watt** (US Patent Application Publication 2003/0126202) in view of **Haun et al.** (US 6,751,058) as applied to claim 9 above, and further in view of **Sheets et al.** (US 6,819,905).

22. Regarding claim 10, **Watt** and **Haun et al.** teach a method substantially as claimed. **Watt** and **Haun et al.** fail to teach de-allocating the read-only copy of the read-only data portion of the selected master image from the server to which the read-only copy was allocated when the server is de-allocated from the system user; and de-allocating the writable data volume of the writable data portion of the selected master storage image that was allocated to the de-allocated server. However, **Sheets et al.** teaches de-allocating the read-only copy of the read-only data portion of the selected master image from the server to which the read-only copy was allocated when the server is de-allocated from the system user; and de-allocating the writable data volume of the writable data portion of the selected master storage image that was allocated to the de-allocated server. (See column 18, lines 32-45 "Another way of looking at how



the present invention can dynamically provide hosted service across disparate accounts is to view a portion of the servers as being assigned to a pool of a plurality of virtual servers that may be selectively configured to access software and data for a particular administrative group...it automatically allocates one of the servers from the pool of virtual servers to that administrative group. Conversely, if the dispatch module determines that an agency group can relinquish one of its servers, that relinquished server would be added to the pool of virtual servers that are available for re allocation to a different administrative group.”) It would have been obvious to one with ordinary skill in the art to combine the method as disclosed in **Watt and Haun et al.** with the de-allocating method as disclosed in **Sheets et al.** because they disclose methods that operate very similarly, but the de-allocation was simply not addressed in **Watt and Haun et al.**, but is a natural extension of **Watt and Haun et al.** By moving the de-allocated copy into the pool, the server is now marked available for future use when it is needed. It is for this reason that one of ordinary skill in the art would have been motivated to include de-allocating the read-only copy of the read-only data portion of the selected master image from the server to which the read-only copy was allocated when the server is de-allocated from the system user; and de-allocating the writable data volume of the writable data portion of the selected master storage image that was allocated to the de-allocated server.

23. Regarding claim 11, **Watt and Haun et al.** teach a method substantially as claimed. **Watt and Haun et al.** fail to teach the step of de-allocating the writable data

volume includes the steps of: assigning the de-allocated writable data volume to a pool of de-allocated writable data volumes; and scrubbing any writable data volumes assigned to the pool of de-allocated writable data volumes asynchronously from the step of de-allocating the writable data volume. However, **Sheets et al.** teaches the step of de-allocating the writable data volume includes the steps of: assigning the de-allocated writable data volume to a pool of de-allocated writable data volumes; and scrubbing any writable data volumes assigned to the pool of de-allocated writable data volumes asynchronously from the step of de-allocating the writable data volume (See column 18, lines 41-45 "Conversely, if the dispatch module determines that an agency group can relinquish one of its servers, that relinquished server would be added to the pool of virtual servers that are available for re allocation to a different administrative group." And see column 15, lines 8-14 "One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group to a second administrative group will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server before that server is brought into service as part of the second administrative group.") It would have been obvious to one with ordinary skill in the art to combine the teachings of **Watt and Haun et al.** with the teachings in **Sheets et al.** by adding the scrubbing method to enhance the security of sharing the data volumes between different users. It is for this reason that one of ordinary skill in the art would have been motivated to have the step of de-allocating the writable data volume include the steps of: assigning the de-allocated writable data volume to a pool of de-allocated writable data volumes; and

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scrubbing any writable data volumes assigned to the pool of de-allocated writable data volumes asynchronously from the step of de-allocating the writable data volume.

24. Regarding claim 21 and 22, **Watt and Haun et al.** in view of **Sheets et al.** disclose the storage area network as cited above for claims 10 and 11 respectively.

### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

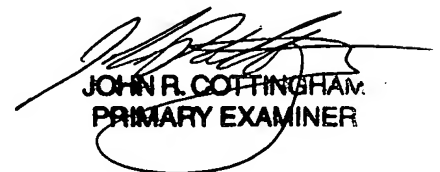
A. Chandra, P. Goyal, and P. Shenoy. *Quantifying the Benefits of Resource Multiplexing in On-Demand Data Centers*. In First Workshop on Algorithms and Architectures for Self-Managing Systems, June 2003.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis L. Vautrot whose telephone number is 571-272-2184. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dv  
April 28, 2006

  
JOHN R. COTTINGHAM  
PRIMARY EXAMINER

